

动物舌温与血液灌注率的关系特性研究

诸凯¹、邹瑾²、李艳¹、魏璠¹、高秀梅³、王怡³、李玉红³、康立源³

1 天津大学热能工程系

2 天津工业大学建筑环境与设备工程系

3 天津中医学院中医工程研究所

结合中医舌诊机理而进行的生物传热研究具有重要的意义。采用多种先进仪器和手段,在大量动物实验的基础上,通过对动物造模改变猪舌的血液灌注率,测试相应条件下的舌面温度,得到舌表面不同位置处的温度与血液灌注率之间的关系。结果表明,舌表面温度随血液灌注率的增加而升高,但血液灌注率增大到一定值后,舌面温度将维持不变,血液灌注率值也不再增长。通过实验得到的温度与血液灌注率间的变化规律,将为建立适合于舌体传热特性的生物传热模型提供客观依据。

THE STUDY ON THE CHARACTERISTICS OF THE RELATIONSHIP BETWEEN THE TEMPERATURE AND THE BLOOD PERFUSION OF ANIMAL TONGUE

The study on the mechanism of the tongue inspection of traditional Chinese medicine combining with bio-heat transfer is greatly important. By using many advanced apparatus and techniques, the authors carried out series of animal experiments. Animal modeling was carried out to change the blood perfusion of the pig tongue, and the temperatures on the surface of the tongue at the correspond-ing blood perfusions were measured to study the relation between the blood perfusions and the temperatures on varied positions of the tongue surface. The results show that the temperatures on the surface of the tongue rise with increasing of the blood perfusions. But when the latter reaches a definite value, the temperatures will not change anymore and at the same time the blood perfusion will keep invariable. The relation between the temperatures and the blood perfusions obtained from the animal experiments could be used as a basis for the establishment of the bio-heat transfer equation for the tongue.

关键词

舌(Tongue); 血液灌注率(Blood perfusion); 舌面温度(Temperatures on the surface of the tongue); 生物传热(Bio-heat transfer)